

CLAIMS

What is claimed is:

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1. A method of managing a free-space optical network, comprising the steps of:
 - directing network data traffic over one or more free-space optical links in the free-space optical network;
 - monitoring one or more environmental conditions in a vicinity of at least one of the one or more free-space optical links; and
 - routing the network data traffic through an alternate communication path in response to data indicative of at least one of the one or more environmental conditions falling below a predetermined level.
 2. A method in accordance with claim 1, wherein the alternate communication path comprises a communication path that is not affected by the at least one of the one or more environmental conditions.
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B2 3. A method in accordance with claim 1, wherein the alternate communication path comprises more than one mode of communication.
 4. A method in accordance with claim 1, wherein the alternate communication path comprises a radio frequency (RF) communication path.
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B3 5. A method in accordance with claim 1, wherein the alternate communication path comprises a fiber optic communication path.

6. A method in accordance with claim 1, wherein the alternate communication path comprises a wire communication path.

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7. A method in accordance with claim 1, wherein the alternate communication path comprises a free-space optical link that is not affected by the at least one of the one or more environmental conditions.

8. A method in accordance with claim 1, further comprising the step of:

rerouting the network data traffic over the one or more free-space optical links in the free-space optical network in response to data indicative of at least one of the one or more environmental conditions rising above the predetermined level.

9. A method in accordance with claim 1, wherein the step of monitoring one or more environmental conditions comprises the step of:

collecting the data indicative of at least one of the one or more environmental conditions with an instrument located in the vicinity of the at least one of the one or more free-space optical links.

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10. A method in accordance with claim 9, wherein the instrument is coupled to the free-space optical network, and wherein the step of monitoring one or more environmental conditions further comprises the step of:

polling the instrument from within the free-space optical network.

11. A method in accordance with claim 9, wherein the step of monitoring one or more environmental conditions further comprises the step of:

storing the data indicative of at least one of the one or more environmental conditions in a memory.

12. A method in accordance with claim 9, wherein the step of monitoring one or more environmental conditions further comprises the step of:

comparing the data indicative of at least one of the one or more environmental conditions to the predetermined level.

13. A method in accordance with claim 9, wherein the step of monitoring one or more environmental conditions further comprises the step of:

sending an alarm over the free-space optical network in response to the data indicative of at least one of the one or more environmental conditions falling below the predetermined level.

14. A method in accordance with claim 13, wherein the step of routing the network data traffic through an alternate communication path is performed in response to the alarm.

15. A method of managing a free-space optical network, comprising the steps of:

directing network data traffic over one or more free-space optical links in the free-space optical network;

monitoring one or more environmental conditions in a vicinity of at least one of the one or more free-space optical links;

attempting to adjust one or both of a transmission power and receive sensitivity of one or more of the free-space optical links in response to data indicative of at least one of the one or more environmental conditions falling below a predetermined level; and

routing the network data traffic through an alternate communication path in response to a failure in the step of attempting to adjust.

16. A method in accordance with claim 15 wherein the alternate communication path comprises a communication path that is not affected by the at least one of the one or more environmental conditions.

17. A method in accordance with claim 15, wherein the alternate communication path comprises more than one mode of communication.

18. A method in accordance with claim 15, wherein the alternate communication path comprises a radio frequency (RF) communication path.

19. A method in accordance with claim 15, wherein the alternate communication path comprises a fiber optic communication path.

20. A method in accordance with claim 15, wherein the alternate communication path comprises a wire communication path.

21. A method in accordance with claim 15, wherein the alternate communication path comprises a free-space optical link that is not affected by the at least one of the one or more environmental conditions.

22. A method in accordance with claim 15, further comprising the step of:

rerouting the network data traffic over the one or more free-space optical links in the free-space optical network in response to data

indicative of at least one of the one or more environmental conditions rising above the predetermined level.

23. A system for managing a free-space optical network, comprising:

means for monitoring one or more environmental conditions in a vicinity of at least one of one or more free-space optical links in the free-space optical network;

means for routing network data traffic over an alternate communication path in response to data indicative of at least one of the one or more environmental conditions falling below a predetermined level; and

means for rerouting the network data traffic over the one or more free-space optical links in the free-space optical network in response to data indicative of at least one of the one or more environmental conditions rising above the predetermined level.

24. A system in accordance with claim 23 wherein the alternate communication path comprises a communication path that is not affected by the at least one of the one or more environmental conditions.

25. A system in accordance with claim 23, wherein the alternate communication path comprises more than one mode of communication.

26. A system in accordance with claim 23, wherein the means for monitoring comprises:

one or more environmental condition instruments located in the vicinity of the at least one of the one or more free-space optical links.

27. A method of managing a free-space optical network,

comprising the steps of:

directing network data traffic over one or more free-space optical links in the free-space optical network;
monitoring one or more environmental conditions in a vicinity of at least one of the one or more free-space optical links;
sending an alarm over the free-space optical network in response to data indicative of at least one of the one or more environmental conditions falling below a predetermined level;
routing the network data traffic through an alternate communication path in response to the alarm; and
rerouting the network data traffic over the one or more free-space optical links in the free-space optical network in response to data indicative of at least one of the one or more environmental conditions rising above the predetermined level.

28. A system in accordance with claim 27, wherein the alternate communication path comprises more than one mode of communication.

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as 29. A method of managing a free-space optical network, comprising the steps of:

directing network data traffic over one or more free-space optical links in the free-space optical network;
monitoring one or more environmental conditions in a vicinity of at least one of the one or more free-space optical links;
sending an alarm over the free-space optical network in response to data indicative of at least one of the one or more environmental conditions falling below a predetermined level;
selecting an alternate communication path for the network data traffic in response to the alarm;

routing the network data traffic through the alternate communication path;

re-evaluating the alternate communication path selection; and

rerouting the network data traffic over the one or more free-space optical links in the free-space optical network in response to data indicative of at least one of the one or more environmental conditions rising above the predetermined level.

30. A system in accordance with claim 29, wherein the alternate communication path comprises more than one mode of communication.

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